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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,513	03/28/2001	Shunpei Yamazaki	740756-2289	1212

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EXAMINER

WINTER, GENTLE E

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 09/05/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,513

Applicant(s)

YAMAZAKI ET AL.

Examiner

Gentle E. Winter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16,17,27-31,33-37 and 39-51 is/are pending in the application.

4a) Of the above claim(s) 39-46 is/are withdrawn from consideration.

- 5) ☐ Claim(s) _____ is/are allowed.

- 6) ☒ Claim(s) 16,17,27-31,33-37 and 47-51 is/are rejected.

- 7) ☐ Claim(s) _____ is/are objected to.

- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. A copy of the 1449, indicating that the provided references have been considered is included herewith. To the extent that it was omitted from the last Official action, the oversight is regretted.

Claim Objections

2. Claims 16, 17, and 27-38 were objected to for minor informalities, the arguments/amendments have overcome the objection(s).

Claim Rejections - 35 USC § 112—Withdrawn & New

3. Claims 16, 17, and 27-38 were rejected under 35 U.S.C. 112, first paragraph, the claims have been amended, and the rejection is withdrawn.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 51 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the plasma indicated in claim 51 lacks antecedent basis. It appears that claim 51 was potentially intended to depend from claim 50 and not claim 47.

Response to Arguments/Amendments

6. Applicant argued that claims 16 and 17 have been amended to recite, “the vapor deposition material comprises an organic light emitting material.” and as such the 102(e) rejection is no longer proper. The arguments are persuasive, and rejection is withdrawn.

7. With respect to claims 16 and 17, addressing the rejection of claims 32 and 38, applicant indicated that the OEL material is “very likely to deteriorate, and is easily oxidized in the presence of oxygen or water...”. Applicant continued that Nguyen discloses the step of oxidizing the metal deposition byproducts on the surface to be cleaned and introducing Hhfac vapor into the chamber to volatilize the metal deposition byproducts oxidized (see claim 1 for example). Applicant’s arguments are all deemed credible, however they are not deemed persuasive. Specifically, the claims use open claim language, thus stating that moisture and oxidation are likely to damage the OEL layer, while credible, argues limitations not in the claims. Additionally, presumably the process includes a selective treatment procedure, and if the material is being sublimated and exhausted, water vapor will not be of great concern because it is being exhausted. Finally, Tanabe discloses an “inert” gas having a moisture content of upto “100 ppm”. Thus it appears that Tanabe contemplates an environment comparable to that argued in the instant case.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 16, 17, 27-29, 30, 31, 33, 34-37, and 47-51 rejected under 35 U.S.C. 103(a) as being unpatentable over PGPub US2001/0009154 to Nguyen and United States Patent No. 6132280 to Tanabe et al (Tanabe).

1. Claims 16 and 17 disclose irradiating a component provided in a film-forming chamber with electromagnetic radiation thereby sublimating a vapor deposition material adhering to the component and exhausting the sublimated vapor deposition material. Nguyen discloses in figure 2 and associated text, the steps of irradiating a component provided in a film-forming chamber (specifically enumerated as a wafer chuck) with electromagnetic radiation (disclosed as heating the chamber surface step 100b) inherent in the heating is presence of IR radiation. The steps result in the sublimation of a vapor deposition material (a copper compound) adhering to the component and exhausting the sublimated vapor deposition material described as removing the volatilized byproducts from the chamber. See e.g. page 3 paragraph 33, and figure 2 and associated text. Additionally, the claims have been amended to include the recitation that the vapor deposition material comprises a light emitting material. Each and every limitation of claims 16 and 17 is identically disclosed in Nguyen as set forth above, except that Nguyen fails to disclose an organic light emitting material (in the context of the present application), Nguyen does disclose the removal metal-organic deposition by products, and as stated above, all the material in the chamber emits light in the IR range. The deposited layer is disclosed to include a metal/organic material, however, "light emitting material" has been construed in an art-recognized manner that is narrower than its more broad literal definition. Light emitting material

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has come mean a material that generates electromagnetic radiation (often in or around the visible spectrum) when electricity is applied to the material. Tanabe is provided for the teaching of sublimating an organic light emitting material something that is not explicitly disclosed by Nguyen. Tanabe discloses an organic EL display device fabrication system which further comprises a cleaning chamber connected to said loading side normal-pressure delivery chamber for cleaning said substrate at normal pressure, in which cleaning chamber said substrate is irradiated with ultraviolet radiation and exposed to ozone. The artisan would have been motivated to use the system of Tanabe in the manner disclosed by Nguyen to exhaust the sublimated material in an attempt to conclude the cleaning operation and avoid the redeposition of the organic material. See Tanabe e.g. at column 3, line 44 *et seq.* Also see example 1 see e.g. column 13, line 65 *et seq.* disclosing the manner in which the chamber is used prior to the cleaning steps. It is also noted that, Tanabe discloses the presence of the argued absence of water and the reasons why water is undesirable. It is noted that the lack of moisture is not a claimed feature.

3. As to claim 27 and 33, disclosing that the IR light radiate by using a light source in the film-forming chamber, the wafer chuck is heated and because it is hot will radiate IR radiation.

4. As to claims 28 and 34 disclosing that the IR source is oblong, the wafer chuck is disclosed to accommodate semiconductor wafers, which are of a generally circular shape. The generally circular shape fits within the ambit of oblong.

5. As to claims 29 and 35 disclosing that a halogen containing gas is supplied during the sublimating step, Nguyen disclosed the use of hexafluoroacetylacetonate which includes the halogen, fluorine.

6. As to claims 30, 31, 36, and 37 disclosing forming an oxygen plasma during exhausting, Nguyen discloses using a RF energy to generate a high flux field, creating an oxygen plasma to further the oxidation process the exhausting step is as taught above, with respect to claim 16 and claim 17. Claim 47-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over PGPub US2001/0009154 to Nguyen and United States Patent No. 6132280 to Tanabe et al (Tanabe) and United States Patent No. 6,559,036 to Ohtani et al. Claim 47 includes the limitation "scanning a lamp light source" it is not altogether clear if the lamp light source or is being scanned or is doing the scanning. Referring to the specification it appears that the light source is being used to scan a surface. This is how the claim has been construed. As a general note the concept of scanning a surface is well known in the art, especially with respect to systems that rely on high intensity light such as lasers etc. In any case each and every limitation of claims 47-51 is disclosed in the combination of Nguyen and Tanabe as set forth above, except that combination apparently fails to explicitly disclose that the light source performs a scanning operation. Ohtani teaches the missing element and explicitly provides the motivation for making the instant combination. See e.g. column 4, line 52 *et seq.* disclosing the use of a scanning light source (laser) for the purpose of uniform surface modification. With specific respect to claim 50, disclosing the presence of plasma the same is disclosed in Tanabe in see column 13, line. Disclosing that ozone may be generated by inserting a dielectric material between a pair of

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electrodes, applying a high-voltage current between the electrodes, and passing oxygen through the resulting discharge space, thus forming a plasma.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 16, 17, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Document 10-168559. At page 6 '559 discloses a vacuum chamber, with an exhaust system, and a plurality of organic EL material evaporation sources (102a and 102b), at page 21 the heaters are disclosed as “infrared lamp heater”. It is noted that the lamp is not disclosed to be scanning, but the shutters are disclosed to move, thus the shutters movement in front of the IR lamp heater is considered to impart the claimed scanning step. The claim does not appear to require the motion of the lamp, and scanning light across the surface may certainly be accomplished by moving the substrate.

Conclusion

8. While the anticipation rejection was withdrawn in light of the recitation of an organic light emitting material, it is noteworthy that it has been held that to be entitled to weight in method claims, the recited structure limitations therein must affect the method in a manipulative sense, and not to amount to the mere claiming of a use of a particular structure. *Ex parte*

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Pfeiffer, 1962 C.D. 408 (1961). Thus the presence of an “organic light emitting material” may be deemed to impart little patentable weight. It is unclear that the claims currently recite any manipulative step that is impacted by the presence of the added recitation. Any doubt has been resolved in applicant’s favor. Applicant is requested to provide clarification in any subsequent communication.

9. Applicant is put on notice that the invention, as currently claimed, may properly be subjected to a restriction/election requirement. All claims have been treated in this Official action because searching the various inventions did not present an undue burden. Nonetheless, substantive amendment of the claims, or the addition of new claims, which would require an additional search may result in a restriction/election requirement.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

11. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gentle E. Winter whose telephone number is (703) 305-3403. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy P. Gulakowski can be reached on (703) 308-4333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Gentle E. Winter
Examiner
Art Unit 1746

September 1, 2003



RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700